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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/756,770

01/14/2004

Jung Ho Kang

040008-0307595

1519

909 7590 04/23/2007
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EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/756,770

Applicant(s)

KANG, JUNG HO

Examiner

Gordon J. Stock

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on January 12, 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The Amendment received on January 12, 2007 has been entered into the record.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 1-7** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-7 are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely 'detecting a defect' (the detecting step is an abstract idea without a tangible result of **claims 1, 6, 7**) would not appear to be sufficient to constitute a tangible result, since the outcome of the detecting (detected defect) has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible. **Claims 2-5** are rejected for depending upon a rejected base claim; wherein **claims 2-5** further limiting of the parent claim still does not have a tangible result.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-5** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As for **claim 1**, the phrase 'measuring thickness data' is indefinite, for it is unclear how one measures data. Examiner has interpreted 'measuring thickness data' as -measuring a thickness-. **Claims 2-5** are rejected for depending from a rejected base claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ledger (5,365,340)-cited by applicant** in view of **Bevis et al. (7,068,363)** in view of **Chalmers et al. (7,095,511)**.

As for **claims 1, 6, and 7**, Ledger discloses a method of inspecting an outer silicon layer of wafer (col. 1, lines 25-28), comprising measuring thickness of the layer (col. 7, lines 30-67; col. 8, lines 1-10) formed on the wafer at a plurality of locations as indicative of the whole wafer (Fig. 3: 52) as well as correlating positions on wafer with pixel positions of CCD (col. 8, lines 15-20) and collecting standard data for an optical image of the wafer at a plurality of locations (col. 7, lines 55-67; Fig. 3: 52); correlating the optic image data to thickness data for each of said plurality of locations (col. 7, lines 65-67; col. 8, lines 1-20); creating a library by matching the

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optic image data to thickness data for each of said plurality of locations (col. 8, lines 15-55); inspecting the layer with the library (col. 9, lines 1-20; col. 10, lines 13-20) wherein a defect is detected (col. 1, lines 50-55).

Ledger is silent concerning making the library by matching measured thickness data and the optic image. Ledger discloses the library being formed from reference thicknesses (col. 8, lines 1-10). However, Bevis in a system for inspection of wafers teaches that measured thicknesses may be used as reference data (col. 28, lines 5-15). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made at the time the invention was made to have the library made from measured thicknesses in order to have data comprising a large range of thicknesses as measured from a reference specimen.

Ledger does not explicitly state that an insulating layer may be inspected; yet he suggests it for any layer may be inspected (col. 10, lines 13-20) while mentioning an insulating layer (Fig. 2: 42) beneath the outer silicon layer being investigated (Fig. 2: 40). However, Chalmers in a method of high speed thickness mapping of patterned thin films teaches that insulators are measured for their thickness (col. 1, lines 20-40). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to inspect an insulator layer in order to determine accuracy and uniformity of its thickness.

As for **claim 2**, Ledger in view of Bevis and Chalmers discloses everything as above (see **claim 1**). In addition, Ledger discloses the thickness standard data is for a particular region of the wafer, the whole of the wafer (col. 7, lines 15-30) as well as specific points on the wafer (col. 7, lines 42-45).

As for **claim 3**, Ledger in view of Bevis and Chalmers discloses everything as above (see **claim 1**). In addition, Ledger discloses the standard data for the optic image is for a particular region of the wafer, the whole of the wafer (Fig. 3: 52; col. 7, lines 58-67) and specific points from pixel correlation (col. 8, lines 10-20).

As for **claim 4**, Ledger in view of Bevis and Chalmers discloses everything as above (see **claim 1**). In addition, Ledger discloses the optic images are digital images (Fig. 1: 34)

As for **claim 5**, Ledger in view of Bevis and Chalmers discloses everything as above (see **claim 1**). In addition, Ledger discloses each optic image for the region represented by each thickness data is determined and a continuous image library for each thickness is constructed (col. 7, lines 30-40 and lines 58-65; col. 8, lines 40-55).

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. In regards to the argument filed on January 12, 2007 in regards to the previous rejection under 35 U.S.C. 101 that 'detecting a defect in the insulating layer with the library' does constitute a tangible result, Examiner disagrees. Merely 'detecting a defect' (the detecting step is an abstract idea without a tangible result of **claims 1, 6, 7**) would not appear to be sufficient to constitute a tangible result, since the outcome of the detecting (detected defect) has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent 6,128,403 to Ozaki

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U.S. Patent 6,512,842 to Steffan et al.

U.S. Patent 6,744,266 to Dor et al.

U.S. Patent 6,815,947 to Scheiner et al.

US 2006/0219678 to Sopori

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

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This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

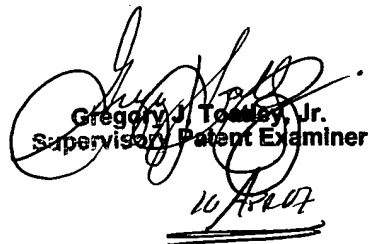
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gs

April 14, 2007

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877


Gregory J. Toatley, Jr.
Supervisory Patent Examiner
10 Apr 07